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ordinary soil and surrounded by an oxyhydrogen atmosphere containing some carbonic acid, a film will develop which represents the growth of the two species of *Hydrogenomonas*, *vitrea* and *flava*. Through the mutual activity of those two species of bacteria constituting the film, the carbonic acid is reduced and hydrogen is oxidized. Each of those organisms is capable of heterotropic feeding, but *vitrea* is unable to develop upon a series of substances which afford suitable food for *flava*. The reason why neither organism can alone develop in the oxyhydrogen atmosphere is that it cannot endure the high tension of the oxygen, for which limit for injurious effect is close to 53 mm. pressure. Free hydrogen is more or less protected against oxidation by those organisms by organic substances which have a food value for them. The author ventures the opinion that in the presence of carbonic acid the hydrogen is used to form compounds with the carbonic acid which are in turn oxidized.—RAYMOND H. POND.

Reduction.—ZALESKI¹³ makes a study of the reduction processes in plants. A brief review of the literature on the subject is followed by a number of experiments. Methylene blue was used as the agent to be reduced. He finds a parallel between the reduction activity and alcoholic fermentation. The main evidence of such a parallel is shown by the fact that various acids, bases, and salts affect similarly the two processes, and plant organs in general show the two processes in a like degree. He points out the fact that we do not know the agent that causes such reductions. It may be an enzyme, reductase or hydrogenase, or it may be a chemical compound capable of absorbing oxygen. One quickly sees the need of a master mind in this field, a person who can use exact chemical methods rather than haphazard ones.

KORSAKOW¹⁴ finds that sodium selenate stops the action of zymase in killed yeast—"zymin"; while it greatly increases its activity in living yeast. This agrees with the effect PALLADIN¹⁵ found that ether and other poisons had on CO₂ (respiratory) production in higher plants. While the selenate stopped the fermentative activity of the dead yeast, it did not modify its reductive power, as shown by the deposit of selenium. Hence it is argued that the two processes are independent, in contrast to ZALESKI's contention.—WILLIAM CROCKER.

Evaporation in marsh vegetation.—Investigating the atmospheric factors in herbaceous marsh vegetation by means of thermometers and a modification of the porous cup atmometer, YAPP¹⁶ demonstrated a marked stratification in

¹³ ZALESKI, W., Ueber die Rolle der Reduktionprozesse bei der Atmung der Pflanzen. Ber. Deutsch. Bot. Gesell. **28**:319-329. 1910.

¹⁴ KORSAKOW, MARIE, Ueber die Wirkung des Natriumselents auf die Ausscheidung der Kohlensäure lebender und abgetoteter Hefe. Ber. Deutsch. Bot. Gesell. **28**:334-338. 1910.

¹⁵ PALLADIN, W., Zur Physiologie der Lipoide. Ber. Deutsch. Bot. Gesell. **28**:120-125. 1910.

¹⁶ YAPP, R. H., On stratification in the vegetation of a marsh and its relation to evaporation and temperature. Annals of Botany **23**:275-320. 1909.